

# Network Service Proposal

## for the Gustavus Community Network

Ivan Kohler  
Freeside Internet Services, Inc.  
12515 Northwoods Blvd. Unit #1, Truckee, CA 96161  
[http://www.sisd.com/freeside/  
ivan@sisd.com](http://www.sisd.com/freeside/ivan@sisd.com) +1 415 462 1624

# Implementation Plan

## Overview

Two servers will be provided to implement the requirements outlined in GCN's RFP, one public server and one private/backoffice server. The first server will provide all public services such as email, web hosting, RADIUS and DNS. This server would be assigned a public IP address provided by GCN and placed outside an internal firewall. The second server will provide all internal services such as billing, usage graphs and network monitoring. This server would not require a public IP address and could be assigned a private address and placed inside an internal firewall.

Both servers will be built, configured with all necessary software and tested prior to shipping to GCN's location. Once the servers are powered on and connected to the network at GCN's location, I will log on remotely via SSH and complete the transition to using the new services live. Existing user email and web content will be migrated to the new servers and the cut over or cut over(s) to the new servers will be performed at a prearranged date and time with minimum interruption of services (a few hours at most, most likely under one hour or less).

## Hardware

The two servers will be built from commodity parts selected for reliability and cost-effectiveness. This is the same configuration used for my own server as well as the fully configured billing and mail servers I offer.

- Form factor: 1U rackmount
- CPU: Athlon 64 3200
- Memory: 1024mb DDR 400
- Storage: SATA150, software RAID1 for reliability. 2x250gb for the public server, 2x80gb for the private server.
- Hardware warranty: 3 years (hard drives 5 yr mfr. warranty)

## Software Overview

All software used will be freely available under open-source licenses. No royalty or usage charges of any kind will be required to myself or any third party, and all source code will be provided. While I of course hope that GCN will find my maintenance service will to be valuable and cost-effective, no proprietary licensing or vendor lock-in will prevent GCN from obtaining maintenance service from any party of its choosing.

The Debian GNU/Linux operating system (<http://www.debian.org/>) will be used as the base for both servers.

## Email

Basic email service will be served by the Postfix MTA (<http://www.postfix.org>). POP3 and IMAP will be provided by the Dovecot software (<http://www.dovecot.org>). Squirrelmail (<http://www.squirrelmail.org>) will provide easy-to-use web mail. In addition, the server will be configured for spam and virus filtering, including automatic updates, using the Spamassassin (<http://spamassassin.apache.org/>) and ClamAV (<http://www.clamav.net/>) tools.

## Web Hosting

The Apache web server (<http://httpd.apache.org/>) will be used for web hosting. Existing content from GCN's current web site and customer sites will be migrated to the server. Users will be able to update their web pages via FTP and SFTP.

## Authentication

The FreeRADIUS server (<http://www.freeradius.org/>) with SQL storage will be used to provide authentication services for GCN's dialup services as well as a captive portal / subscriber server.

## Accounting and Billing

The Freeside billing software (<http://www.sisd.com/freeside/>) will provide billing service. Freeside is the premier open-source ISP automation package, including all features requested by GCN:

- Customer signup with real-time credit card authorization and provisioning. A customer self-service interface for existing customers is also available.
- Provisioning of mailboxes, hosting accounts and RADIUS accounts (Internet access).
- Email invoicing (plain text, HTML and/or PDF). Print and fax invoicing are also available.
- Multiple billing plans including flat rate, prorated, and usage-based (time and/or data transfer)
- Automatic, real-time credit card processing
- Automatic late notices, card retry and account suspension with all actions and time frames configurable from the backoffice web interface.
- Many detailed reports and graphs, including A/R aging, prepaid income, tax reports, customers, packages and services, etc.
- End-users may view their own payment history and usage, process payments and make changes to their accounts from the customer self-service interface.
- The Freeside software also includes a complete, integrated trouble-ticketing system for use by GCN when providing end-user support.

## DNS

DNS will be provided by the standard BIND9 name server (<http://www.isc.org/sw/bind/>). The Freeside billing software will provide an easy-to-use web interface to maintain the gustavus.ak.us zone (and any other zones GCN may host in the future).

## Network Monitoring

Usage graphs and network monitoring will be provided by the Zabbix software (<http://www.zabbix.com/>). This is an integrated package offering graphing as well as networking monitoring.

## Transparent Cache

Although not directly requested in GCN's RFP, a transparent web cache can provide a significantly faster web browsing experience over high-latency connections such as satellite. The Squid cache (<http://www.squid-cache.org>) will be used as a transparent web cache.

## Additional GCN responsibilities

These are some brief items not explicitly mentioned in the RFP that are not included in this proposal, mostly concerning optional capabilities of the billing software.

GCN will need to have or obtain a merchant account with a bank and a gateway account with a real-time online processor. I will provide recommendations and support through this process if required. The gateways currently supported by the Freeside software are listed at <<http://420.am/business-onlinepayment/>>. If GCN obtains a gateway account from an unsupported provider, any necessary integration work will be included at no additional charge.

GCN will need to configure their network to redirect web traffic to the public server's transparent web cache. I will provide support through this process if required.

If GCN wishes to print invoices automatically, they will need to have a network-attached printer with Postscript support, or connect a compatible printer to the provided internal server directly, or configure a Windows computer as an emulated Postscript printer. Note this is only for automatic printing - individual users of the back-office billing software can always print invoices manually, in any case, by downloading and printing the PDF invoice locally.

If GCN wishes to fax invoices, there would be a small additional fee for an external modem which would be attached to the serial port of the internal server and to an analog phone line.

## Optional services

The only optional service included in the base proposal is network device monitoring, as it is included with the software used for usage graphing.

With regards to the other optional services, my ongoing maintenance agreement includes 12 hours/month to work on tasks as directed by GCN. While I would anticipate that at the start of the maintenance agreement, most of the time each month would be used providing support for GCN's staff and minor customizations to the new systems, eventually I would anticipate most or all of this time could be spent setting up the various requested optional services.

For maximum cost-effectiveness, I would strive to implement the various optional services using existing open-source software where available rather than write software from scratch. The Debian distribution includes a very large selection of software suited to the optional services, such as:

- the Mailman mailing list manager (<http://www.gnu.org/software/mailman/>)
- the PHPBB discussion board software (<http://www.phpbb.com>)
- the Plone content management software (<http://www.plone.org>)
- the Kronolith (<http://www.horde.org/kronolith>), Schoolbell (<http://www.schooltool.org/schoolbell>) and WebCalendar (<http://www.k4n.us/webcalendar.php>) calendaring applications.
- OpenLDAP server and utilities (<http://www.openldap.org>)

Deployment and maintenance cost is minimized as this software is included with the OS rather than requiring separate installation.

## Costs, time frame and terms of service

Setup cost: \$9700 including all hardware (will be fully owned by GCN), initial setup and configuration, migration from existing systems and email/telephone/IM support through and including the live cut over to the new systems, as well as for two months following the live cut over.

Maintenance/support cost: \$750/month includes email, phone and IM support during normal business hours (Monday through Friday, 9am to 5pm PST), as well as 24/7 support for emergencies by cell phone / pager. When I am unavailable, an employee or subcontractor will take over the emergency support function. The maintenance contract also includes upgrades to all software as available (typically once per quarter for the billing software and once every 1.5 years for all other software), as well as immediate security “hot fixes” for any security problems in installed software, optional off site backup of your customer database, and 12 hours/month of customizations or additional support as directed by GCN. Fixes for any problems caused by a bug in Freeside software or other basic software outlined in this proposal (not the “optional services” software) are included and not counted against the 12 hours/month.

Terms: Setup cost is due one-half in advance, with the remaining half due upon completion of full live cut over to the new systems. Subsequent maintenance/support will be invoiced and is payable Net 30.

Time frame: Systems will be built, tested and shipped to GCN within one month of receipt of the initial setup fee. Live cut over will be completed within one month of receipt and connection to the network of the systems by GCN.

## About Ivan Kohler and Freeside Internet Services

Ivan Kohler is the original and primary author of Freeside, the leading open-source billing and automation package for ISPs and online businesses. Ivan has been helping ISPs and online businesses with their billing, ticketing, and operations for an unexaggerated ten years. Freeside has been available as open-source software for over seven years. Ivan is a Debian developer, a Perl CPAN module author, and a cat person.

Freeside Internet Services, Inc. provides consulting services, preconfigured hardware and support for the Freeside billing system and other aspects of ISP operations. Freeside Internet Services is a privately-held California corporation.

### References

Surferz.net in New York state <<http://www.surferz.net/>>  
Arnie Cavallaro <[arnie@surferz.net](mailto:arnie@surferz.net)>

I setup and maintain most of Surferz.net's servers, providing billing, email, RADIUS, DNS, web hosting, etc. This compares fairly directly with the services in this proposal.

295.ca in Ontario, Canada <<http://www.295.ca/>>  
Jody Schnarr <[jody@295.ca](mailto:jody@295.ca)>

I setup and maintain billing, email, and RADIUS servers for 295.ca.

Quantum Internet Services, Inc. <<http://www.qis.net/>>  
Kevin Brown <[kevin@qis.net](mailto:kevin@qis.net)>

I setup and maintain a billing server for Quantum Internet Services.

### Contact Information

Ivan Kohler  
Freeside Internet Services, Inc.  
12515 Northwoods Blvd. Unit #1  
Truckee, CA 96161

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Email: [ivan@sisd.com](mailto:ivan@sisd.com)